Remarks

The Office Action dated June 30, 2008, has been carefully reviewed and the following remarks have been made in consequence thereof.

Claims 1-27 are pending in this application. Claims 1-27 are rejected. It is respectfully submitted that the pending claims define allowable subject matter.

Initially, Applicant respectfully submits that the previous Office Action dated August 23, 2007 indicated that Claims 6, 8-9, 11-12, 20, and 22-24 are objected to as being depended on a rejected base claim, but would be allowable if rewritten in independent form including all the limitations of the base claim. The objection to the above claims was made by the Examiner based on the Examiner's review of the prior art, namely U.S. Patent App. 2004/0208118 and U.S. Patent 5,838,924. In the current Office Action, the Examiner has indicated that Claims 6, 8-9, 11-12, 20, and 22-24 are no longer in condition for allowance based on the same prior art cited in the previous Office Action. Applicants respectfully submit that the dependent Claims 6, 8-9, 11-12, 20, and 22-24 remain in condition for allowance. Moreover, Applicant respectfully submits that the remaining claims are also in condition for allowance based on the reasons cited below.

Turning to the current rejection of the claims, Claims 1-27 have been rejected under 35 U.S.C. § 103(a) as being unpatentable over DeBoer et al. (U.S. Patent App. No. 2004/0208118) in view of Anderson et al. (U.S. Patent No. 5,838,924).

Claim 1 recites a sub-network connection system that includes line modules configured to receive bridged traffic signals over individual corresponding channels. The line modules are grouped into sets at a lower protection layer. The sets of line modules are organized into working legs and protection legs at an upper protection layer. The line modules are activated/deactivated based on different upper and lower protection schemes associated with the upper and lower protection layers. State maps are associated with each of the line modules. The state maps store state data that activates and deactivates the line modules. The state maps are updated in accordance with the lower protection scheme to perform **intra-leg switching** between the line modules in one of the working and protection legs. The state maps are updated in accordance with the upper protection scheme to perform **inter-leg switching** between a first line

module in one of the working and protection legs and a second line module in another of the working and protection legs. A network control module is interconnected with the line modules. The network control module performs inter-leg switching by updating the state data in the state maps for corresponding line modules in associated working and protection legs.

Claim 15 recites a method for protection switching in a sub-network connection. The method includes receiving traffic signals at line modules that are grouped into sets, where the sets of line modules are organized into working legs and protection legs, and storing state data in state maps associated with each of the line modules. The method further includes inter-leg switching between a first line module in one of the working and protection legs and a second line module in another of the working and protection legs by updating the state maps in accordance with an inter-leg protection scheme, and activating and deactivating the line modules based on updates to the state maps.

The Office Action admits on Page 7 that DeBoer does not disclose "[a] sub-network connection system, comprising: line modules configured to receive bridged traffic signals over individual corresponding channels, the line modules being grouped into sets at a lower protection layer, the sets of line modules being organized into working legs and protection legs at an upper protection layer, wherein the line modules are activated/deactivated based on different upper and lower protection schemes associated with said upper and lower protection layers." The Office Action also admits on Page 7 that DeBoer does not disclose "a network control module interconnected with the line modules." Applicant agrees.

However, on Page 3, the Office Action asserts that DeBoer does disclose "state maps being updated in accordance with the lower protection scheme to perform **intra-leg switching** between line modules in one of the working and protection legs." The Office Action also asserts that DeBoer describes "the state maps being updated in accordance with the upper protection scheme to perform **inter-leg switching** between a first line module in one of the working and protection legs and a second line module in another of the working and protection legs."

Applicant respectfully submits that since DeBoer does not describe the sub-network connection system recited in Claim 1, that clearly De-Boer also does not describe state maps that are used in such a system. More specifically, DeBoer, as admitted in the Office Action, does not disclose "the line modules being grouped into sets at a lower protection layer, the sets of line modules being organized into working legs and protection legs at an upper protection layer, wherein the line modules are activated/deactivated based on different upper and lower protection

schemes associated with said upper and lower protection layers." Therefore, DeBoer can not disclose "state maps are updated in accordance with the lower protection scheme to perform **intra-leg switching** between the line modules in one of the working and protection legs. The state maps are updated in accordance with the upper protection scheme to perform **inter-leg switching** between a first line module in one of the working and protection legs and a second line module in another of the working and protection legs" as recited in Claim 1.

DeBoer does not describe state maps that perform both inter-leg switching and intra-leg switching. In contrast to the recited claims, DeBoer describes and illustrates in Figure 4a a simplified shared mesh network structure. The shared path protection set-up of the sub-network E consists of a series of network elements 14 indicated as 1, 2, 3, 4, 5, 6 with a corresponding number of OCC's (Optical Connection Controller) (OCC) 28 indicated as OCC 1, OCC 2, OCC 3, OCC 4, OCC 5, and OCC 6. The elements 1, 2, 3, 4, 5, 6 are interconnected by the conduits 16, logical and/or physical, with solid line paths A-B and C-D denoting working W paths and the dotted line paths 1-3-4-2 and 5-3-4-6 between the elements 1, 2, 3, 4, 5, 6 denoting potential protection P paths. (Paragraph 40, lines 1-11). DeBoer also describes that each controller OCCn has stored a corresponding map Mn of all network elements 1, 2, 3, 4, 5, 6 used in the path containing the associated conduits 16. These connection maps Mn are indicated in FIGS. 4a, b as M1, M2, M3, M4, M5, M6, which contain connection information for all network elements 1, 2, 3, 4, 5, 6 contained in both working W and protection paths P. Referring to FIG. 4b, various example nodal maps Mn are presented that correspond to the network structure of sub-network En of FIG. 4a. For example, map M1 is stored at controller OCC1 and contains a working W path A-B between elements 1 and 2 (AB-W-12), and a protection P path for the working path A-B identified as containing network elements 1342 (AB-P-1342). (Paragraph 41, lines 1-14).

In contrast to the recited claims, DeBoer describes a network protection scheme having only a single protection layer. The single protection layer is described and illustrated by DeBoer in Figure 4a. DeBoer specifically states at numerous locations in the specification that the protection scheme includes a single protection P path (see FIG. 4a) of a 1:N group, wherein the number "1" represents the group number and the letter "N" represents the particular member number of the corresponding group "1". (See Paragraph 38 for example).

DeBoer also describes and illustrates in Figure 4b, examples of the contents of various maps described by DeBoer. One such map, described above, clearly states that map M1 is stored at controller OCC1 and contains a working W path A-B between elements 1 and 2 (AB-W-12)

and a protection P path for the working path A-B identified as containing network elements 1342 (AB-P-1342). This map clearly shows that switching is accomplished between the working path, i.e. one leg of the protection scheme, to the protection path, i.e. another leg of the protection scheme. DeBoer does not describe line modules are activated/deactivated based on different upper and lower protection schemes associated with the upper and lower protection layers. Therefore, DeBoer also does not describe state maps are updated in accordance with the lower protection scheme to perform **intra-leg switching** between the line modules in one of the working and protection legs.

The Office Action asserts that is would be obvious to modify the system of DeBoer by suing the features as taught by Anderson. Applicant disagrees. As discussed above, DeBoer describes a 1:N protection scheme. Moreover, Anderson also describes a 1:N protection scheme. Since neither DeBoer nor Anderson describe the network recited in the claims, the claims are patentable over the combination of DeBoer and Anderson.

More specifically, it is respectfully submitted that Anderson does not describe that line modules are grouped into sets at a lower protection layer, the sets of line modules are organized into working legs and protection legs at an upper protection layer, or that the line modules are activated/deactivated based on different upper and lower protection schemes associated with the upper and lower protection layers. Moreover, Anderson does not describe that state maps associated with each of the line modules, the state maps store state data that activates and deactivates the line modules, the state maps are updated in accordance with the lower protection scheme to perform intra-leg switching between the line modules in one of the working and protection legs, or that the state maps are updated in accordance with the upper protection scheme to perform inter-leg switching between a first line module in one of the working and protection legs and a second line module in another of the working and protection legs.

Additionally, if the rejection is uphold, Applicant respectfully requests that additional detail from Anderson that is being recited to reject the claims be provided to allow the Applicant an adequate opportunity to respond to the rejections. For example, the Office Action asserts on Page 8, that Anderson describes "the line modules being grouped into sets at a lower protection layer" (Fig. 2 and column 1, lines 45-41). The Office Action also asserts on Page 8 that Anderson describes "the sets of line modules being organized into working legs and protection legs at an upper protection layer" (Fig. 2 and abstract lines 1-12). However, as shown in Figure 2, and described by Anderson, the network includes only a single working path and a single

protection path. Moreover, the Office Action asserts that Figure 2 illustrates the "lower protection layer" and then also asserts that Figure 2 now illustrates the "upper protection layer". Applicant respectfully submits that Figure 2 illustrates only a single protection layer and cannot be read to include both an upper and a lower protection layer as recited in the claims. Additionally, the Office Action does not provide reference labels for the line modules that are grouped into sets to enable the Applicant to determine whether Anderson describes organizing sets of line modules into working legs and protection legs. Nor does the Office Action clearly indicate where Anderson describes inter-leg switching between a first line module in one of the working and protection legs and a second line module in another of the working and protection legs. Since Anderson does not describe a lower and upper protection scheme as recited in Claims 1 nor does Anderson describe inter-leg switching between a first line module in one of said working and protection legs and a second line module in another of said working and protection legs as recited in Claim 15, Anderson does not make up for the deficiencies of DeBoer with respect to Claims 1 and 15.

With respect to Claim 2, as admitted in the Office Action, DeBoer does not disclose the recitations of Claim 2. Moreover, Anderson does not describe the recitations of Claim 2. Anderson describes a single a source node 101, a single intermediate node 102, and a single destination node 103. Since, Anderson does not describe line modules being grouped into sets at a lower protection layer, and that the sets of line modules are organized into working legs and protection legs at an upper protection layer. Anderson also does not describe that the line modules constitute I/O boards, nor does Anderson describe that the network control module performs a switch operation between a working I/O board in the working leg and a working I/O board in the protection leg when a defect is experienced in a traffic signal. Accordingly, Claim 2 is therefore submitted to be patentable over DeBoer and Anderson.

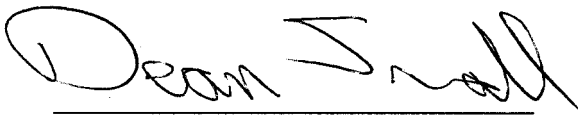
With respect to Claims 3-5, 9, 11, 16, 17, 20, 23, 24, 27 as admitted in the Office Action, DeBoer does not disclose the recitations of Claim 1 or Claim 15. Moreover, since Anderson does not describe a lower and upper protection scheme as recited in Claims 1 nor does Anderson describe inter-leg switching between a first line module in one of said working and protection legs and a second line module in another of said working and protection legs as recited in Claim 15, Claims 3-5 are therefore submitted to be patentable over DeBoer and Anderson.

Turning to the remaining dependent claims, DeBoer and Anderson fail to teach or suggest each and every limitation included in the dependent claims. Accordingly, Claims 6-8, 10, and

12-14 depending from Claim 1 and Claims 18, 19, 21, 22, 25, and 26 depending from Claim 15 define allowable subject matter.

In view of the foregoing remarks, all the claims now active in this application are believed to be in condition for allowance. Reconsideration and favorable action is respectfully solicited.

Respectfully Submitted,



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